

THE WIDER ROAD



PRESENTATION TO INCLUDE FORUM ON INCLUSIVE GROWTH
30 SEPTEMBER 2016, LEIDEN THE NETHERLANDS

THE WIDER ROAD



Relevance

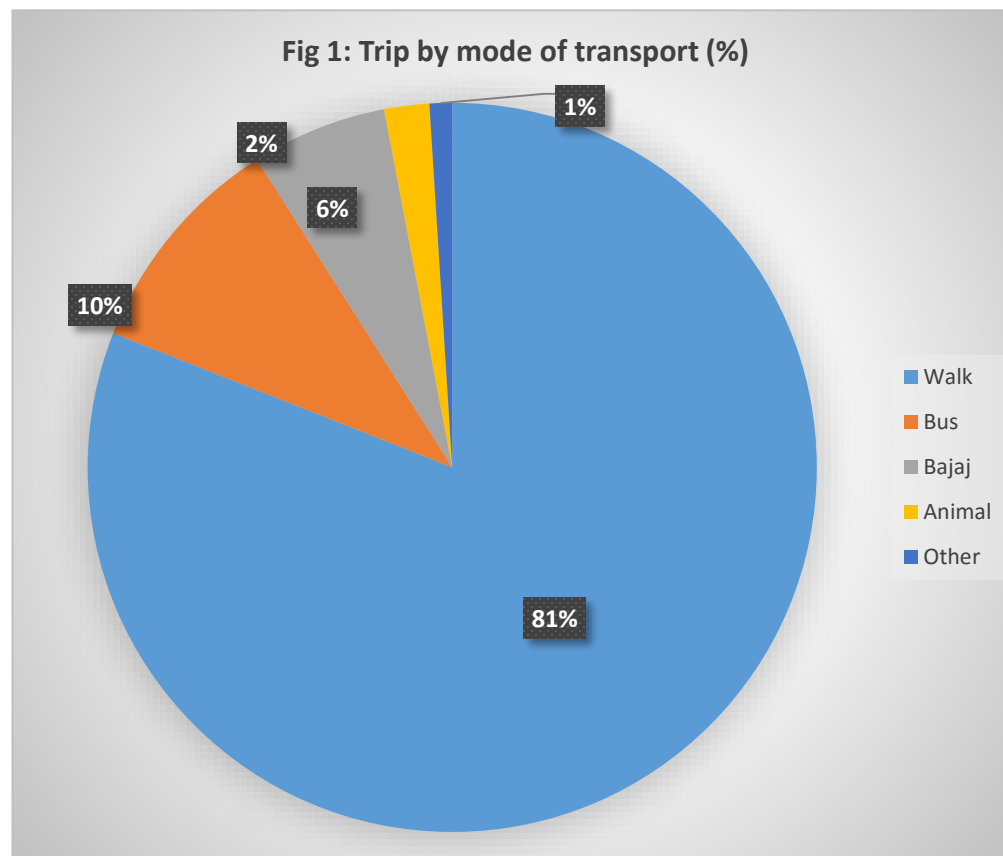
- Annual investment 1-2 Trillion USD
- 40% in developing countries
- 1 Billion people totally unconnected
- Increased water stress – most poor in water stressed areas (74%)
- MDB's invest USD 17.5 Billion/Yr up to 2022
- **United Nations Secretary-General's High-Level Advisory Group on Sustainable Transport:**
- 'Transport plays an essential role in countries' economic growth, competitiveness, balanced and liveable spatial development, access to water and energy and food saving'
- But largely 'unresearched'

This presentation

- Understanding social and economic use of roads
- Environmental effects of roads
- Impact on inequality
- Recommendations

Rural mobility and transport in feeder roads in Ethiopia

- The form and content of rural mobility and transport depend on both public and private investment to provide transport modal choice.
- In the absence of either public subsidy or private capital investment, the transport modal choice becomes limited and people adhere to walking



The rural community is overwhelmingly a 'walking world'

Rural mobility and transport



Bajaj transporting people from the *tabia* center of Werebaye to main road

An important development is the use of a three wheel drive locally called ‘bajaj’

Buses and cars could be expensive or too big to serve remote rural communities.

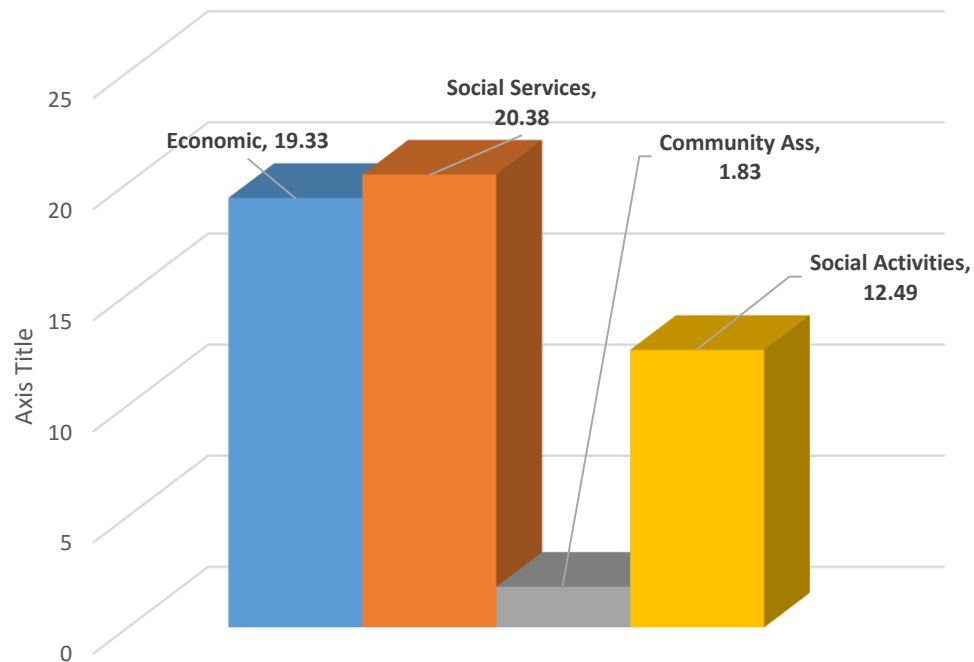
Bajajs started to serve as an affordable means of transport for people and goods from villages to the main road

Bajajs are both affordable and operate at a small scale. Where landscape and road conditions permit, they could be the future mode of transport for people and goods from remote villages to main road – but are they approp

Rural mobility by trip purpose

- Trips in rural areas are often made for economic activities, social services, social activities and community association

Fig 3: Average monthly distance travelled by trip purpose



The dominant form of travel in the rural area is social services mainly education and health, followed by economic activities which includes travel for market, agricultural activities and travel for employment

Rural mobility by trip purpose



Ambulance service at times of emergency in rural areas

Rural communities prioritize road access to health facilities because the traditional way of transporting a sick person, i.e., carrying a sick person on a stretcher by people walking a long distance, is life threatening

Market access and distance to road

- In developing countries like Ethiopia, transport cost constitutes more than half of the marketing costs.
- Changes in sales of agricultural products

Product type	Changes in sales			Changes in sales attributed to road	
	Increase	Decrease	No change	All of the change	Part of the change
Cereals	69	3	28	24	74
Vegetables	81		19	34	66
Fruits	81		19	35	65
Other products	87	2	11	34	64

- More than three fourth of respondents revealed an increase in marketing of agricultural products after road construction
- About a third of the respondents further indicated that the rise in sales is attributable fully to road construction, i.e., without the road, the rise in sales would not have been possible.

Negative effects of roads



- Besides land lost for road construction, roads can have unwanted environmental consequences that affect the livelihood of rural communities.

Effects of roads	Total observation	Frequency	Percent
Flooding	525	179	34
Water logging	525	61	12
Erosion	525	153	29
Sediment deposition	525	95	18
Dust	525	229	44
Weeds	525	47	10

The environmental consequences of roads in the order of number of respondents are:

1. Dust
2. Flooding
3. Erosion
4. Sediment deposition
5. Water logging
6. Weeds

Negative effects of roads

- Not all households who reported a rise in environmental factors were directly affected

Type of effect	No. of hhs directly affected	Amount of decrease in crop production/income		
		< 10%	10 % - 30%	30% - 50%
Flooding	41	24%	59%	17%
Water logging	9	11%	67%	22%
Erosion	34	44%	44%	12%
Sediment deposition	21	33%	57%	10%
Dust	49	29%	55%	16%
weed	8		63%	37%
Overall	162	30%	55%	15%

Although difficult to exactly quantify the loss in agricultural production or income due to the environmental consequences of roads, the perception of the majority of the rural communities is that the loss in production ranges from 10 to 30 percent. Some even put the loss as high as 50%



Side gullies – moisture depletion

Current situation 'roads and water as enemies'

- On average in 10 kilometer > 13-25 problem spots
 - Erosion and sedimentation: 7.5 locations
 - Flooding of houses and land: 2 locations
 - Persistent waterlogging: 4 location
 - Lost opportunity to capture water 4 M m³
- Deficiencies in governance process
 - Missing from guidelines
 - No coordination
 - No interaction with road-side communities



Threshold Effects

- Socio economic and environmental effects of roads could be felt differently by households located at different distance to a road, and such effects may follow some threshold patterns
- Analyzing the influence zone of roads can have important implications on understanding effects of roads to communities on both sides of the road

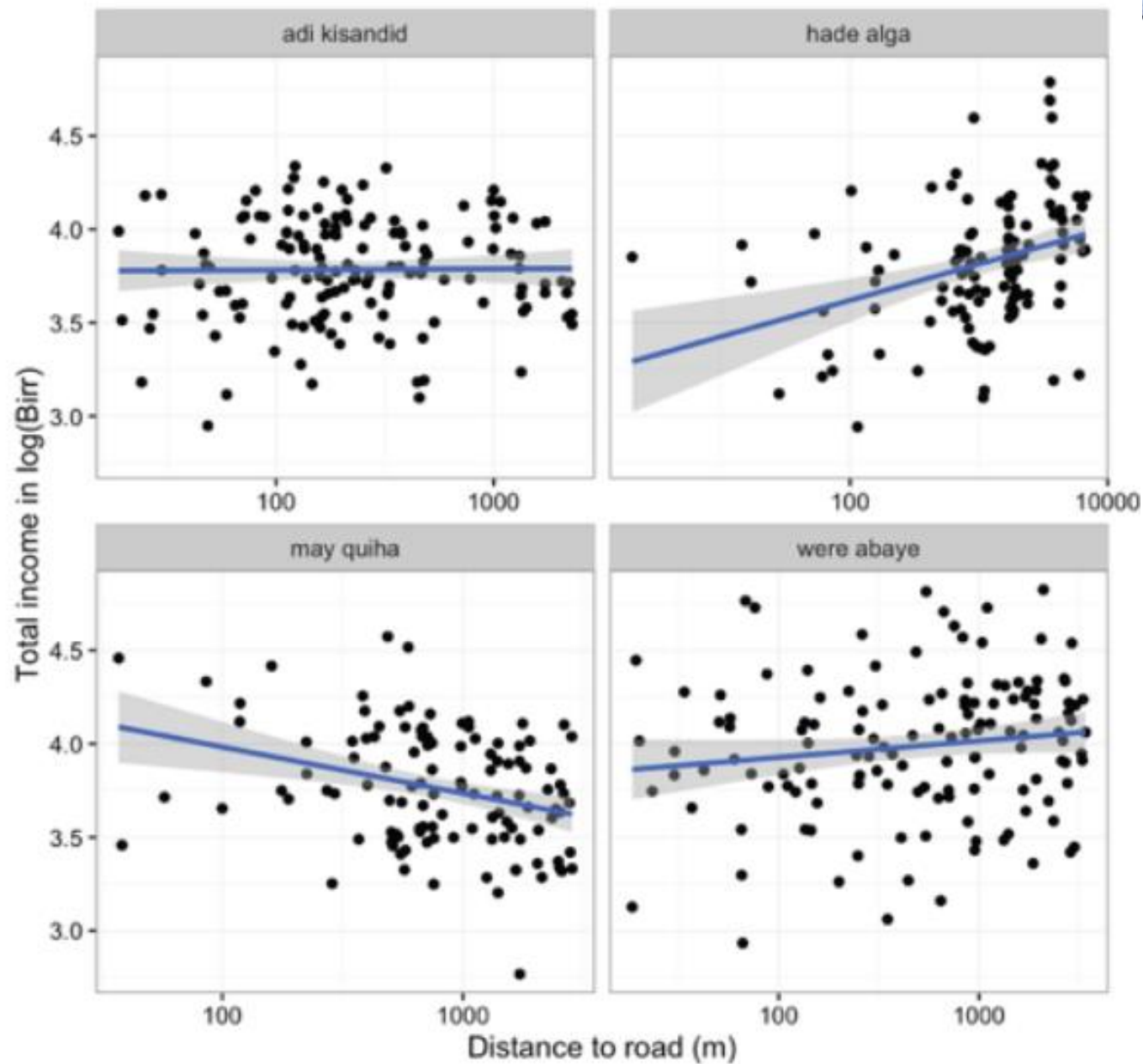
Response	Breakpoint (km)
Trips per capita	NA
Motorized transport	2.58±0.6
Fertilizer	1.83±0.78
Commerce	1.51±0.02
Dust	0.24±0.04
Flooding	0.7±0.03
Erosion	NA

Thresholds were observed in effects considered except mobility and erosion.

The absence of threshold in mobility could be due to the fact most trips in the rural communities are made on foot which does not require availability of roads

Where threshold effect exists, the road influence zone ranges from 300 meters in case of dust to about 3 km in the case of motorized transport on both sides of the road

Unclear effect of road on inequality



Summary

- For a long time, road infrastructure had been the major bottleneck in Ethiopia
- Cognizant of the challenges, the Ethiopian government has shown greater commitment for road sector development
- Better roads, however, are not sufficient but necessary conditions to benefit the poor.
- Ability of the poor to make significant economic use of a road depends on:
 - Their asset base,
 - Their entitlements to resource and opportunities that they can command
 - Distance to road
- Road influence zone has been used to analyze influence of roads on service used and environmental effects of road.
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Summary

- Rural roads are benefiting rural communities directly and indirectly.
- Roads enhance mobility in association with wheeled or motorized transport
- Motorized transport is correlated with wealth indicating the fact that road improvement alone may not enhance mobility of the rural poor
- A new development is the use of Bajaj as affordable means of transport from villages to main road
- Roads also affect the environment which can in turn affect agricultural production and hence the livelihood of rural communities
- Like road safety issues, remedial measures to reduce environmental consequences of roads need be considered when roads are constructed

Recommendations (1)

- Fill the transport gap
- Bring together different players
 - Authorities/ regulation
 - Youth credit programs
 - Industries



Recommendation (2)

- **Systematic road water harvesting**
 - Integrated in mass mobilization campaigns: 800,000 persons served
 - Guidelines of Ethiopian Roads Authority



Recommendation (3)

Promote road side tree planting

- Promote in watershed campaign (> 100 km in 2016)
- Learning on species, management, effects on roadside
- Set up Road Side Tree Planting Alliance for SSA



Recommendation (4)

Promote and upscale controlled sand mining

- Reduces blockages of road hydraulic structures (road side drainages, culverts, and bridges).
- Minimizes maintenance costs of roads and their hydraulic systems.
- Minimizes flooding of surrounding areas due to blockages of hydraulic structures
- Creates livelihood opportunities for the youth.

